

Notice of Allowability

Application No.

10/030,451

Examiner

Wesley D. Markham

Applicant(s)

KHUDYAKOV ET AL.

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the after-final amendment filed on 10/18/2005.
2. ☒ The allowed claim(s) is/are 1-21 and 25.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION / ALLOWANCE

Response to Amendment

1. Acknowledgement is made of the after-final amendment filed by the applicant on 10/18/2005, in which Claim 24 was canceled. This amendment has been entered. **Claims 1 – 21 and 25** remain pending in U.S. Application Serial No. 10/030,451, and an Office action on the merits follows.

Drawings

2. The replacement sheet of drawings (1 sheet showing a single figure) filed by the applicant on 4/22/2004 is acknowledged and approved by the examiner.

Allowable Subject Matter

3. Claims 1 – 21 and 25 are allowed.
4. The following is an examiner's statement of reasons for allowance: Independent Claim 1 is drawn to an apparatus for photocuring a coating on a target fiber comprising a laser source, a beam expander, a first lens operable to focus the beam expander output on the target fiber coating, and a concave optical element disposed on an opposite side of the target fiber relative to the beam expander and first lens, wherein the concave optical element comprises a half cylinder mirror. Independent Claims 12 and 25 are drawn to a method of photocuring a coating on an optical fiber, comprising expanding a laser beam to produce an expanded diameter laser beam, focusing the expanded diameter laser beam to a strip of light having a diameter that

is larger than the diameter of the fiber onto the front side of the fiber to cure the fiber coating, and reflecting the laser beam strip of light to a rear side of the fiber. Claim 12 further requires the use of a half cylinder mirror to reflect the laser beam, and Claim 25 further requires that the expanding, focusing, and reflecting elements be aligned in a linear disposition with each other. A summary of the closest prior art of record follows. Hill (USPN 3,407,294) and Fejer et al. (USPN 4,650,322) teach laser focusing apparatuses but do not teach or reasonably suggest (1) that the concave optical element is a half cylinder mirror (i.e., the concave optical elements of Hill and Fejer are lenses) or (2) a method of photocuring a coating on an optical fiber.

Osborne teaches a method and apparatus for focusing a laser beam into a line to linearly weld sheets of polymeric material. The apparatus of Osborne does not include a concave optical element / half cylinder mirror, and Osborne does not teach a method of photocuring a coating on an optical fiber. Kruishoop teaches a method and apparatus for photocuring a coating on an optical fiber comprising a laser and a "plurality of lenses" for imaging the laser light source. However, Kruishoop, alone or in combination, does not teach or suggest (1) using a half cylinder mirror in conjunction with the laser curing / "plurality of lenses" embodiment or (2) that the expanding, focusing, and reflecting elements are each aligned in a linear disposition with each other. Thompson (USPN 6,463,872), Severijns et al. (USN 4,774,104), Byron et al. (USPN 5,995,697), and Sumitomo Electric (JP 64-087536) all teach methods and apparatuses for photocuring a coating on an optical fiber. However, none of the references, alone or in combination, teaches or suggests each and

every limitation of the claims. For example, Thompson does not teach or suggest expanding the laser beam (a beam expander) and focusing the expanded diameter laser beam to a strip of light having a diameter larger than the fiber diameter (a lens operable to focus the output of the beam expander on the target fiber coating); Severijns et al. teaches a mercury vapor discharge lamp (not a laser) and does not teach or suggest expanding the laser beam (a beam expander) and focusing the expanded diameter laser beam to a strip of light having a diameter larger than the fiber diameter (a lens operable to focus the output of the beam expander on the target fiber coating); Byron et al. does not teach or suggest expanding the laser beam (a beam expander), and Byron et al. teaches de-focusing the laser and using a concave mirror on the opposite side of the fiber to reflect light to the backside of the fiber (i.e., does not teach or suggest expanding the laser beam (a beam expander) and focusing the expanded diameter laser beam to a strip of light having a diameter larger than the fiber diameter (a lens operable to focus the output of the beam expander on the target fiber coating)); and Sumitomo Electric does not teach or suggest expanding the laser beam (a beam expander), focusing the expanded diameter laser beam to a strip of light having a diameter larger than the fiber diameter (a lens operable to focus the output of the beam expander on the target fiber coating), a half cylinder mirror concave optical element, or a linear disposition of the components. For the above reasons, independent Claims 1, 12, and 25 are allowed, as well as their associated dependent claims.

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5. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D. Markham whose telephone number is (571) 272-1422. The examiner can normally be reached on Monday - Friday, 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


WDM


TIMOTHY MEKS
SUPERVISORY PATENT EXAMINER

Wesley D Markham
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